



US005960997A

United States Patent [19] Forsythe

[11] Patent Number: **5,960,997**
[45] Date of Patent: **Oct. 5, 1999**

[54] BEVERAGE DISPENSING APPARATUS

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[21] Appl. No.: **08/909,555**

[22] Filed: **Aug. 12, 1997**

[51] Int. Cl.⁶ **B67D 5/56**

[52] U.S. Cl. **222/129.3; 222/641; 222/129.4**

[58] Field of Search **222/52, 63, 641, 222/129.1-129.4**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,880,912	4/1959	Fisher	222/129.4
3,396,871	8/1968	McCann	222/76
3,640,433	2/1972	Rodth	222/129.2
3,643,688	2/1972	Meinert	137/556
4,011,967	3/1977	Halsey et al.	222/70
4,753,370	6/1988	Rudick	222/105

4,815,633	3/1989	Kondo et al.	222/129.4
4,821,925	4/1989	Wiley et al.	222/129.4
4,923,092	5/1990	Kirschner et al.	222/129.4
5,033,648	7/1991	Nakayama et al.	222/129.1
5,062,555	11/1991	Whigham et al.	222/641
5,303,846	4/1994	Shannon	222/54

Primary Examiner—Gregory L Huson
Attorney, Agent, or Firm—Senniger, Powers, Leavitt & Roedel

[57] **ABSTRACT**

A beverage dispensing apparatus comprises a system for dispensing a base beverage including a control for controlling dispensing of a quantity of the base beverage, and a system for dispensing at least one flavoring for admixture with the dispensed base beverage. The flavoring dispensing system has a valve for controlling dispensing of the flavoring and a control operable in response to actuation of the beverage dispensing system control to dispense base beverage for opening the valve to dispense flavoring simultaneously and throughout dispensing of the base beverage with a constant volume ratio of base beverage and flavoring.

13 Claims, 3 Drawing Sheets

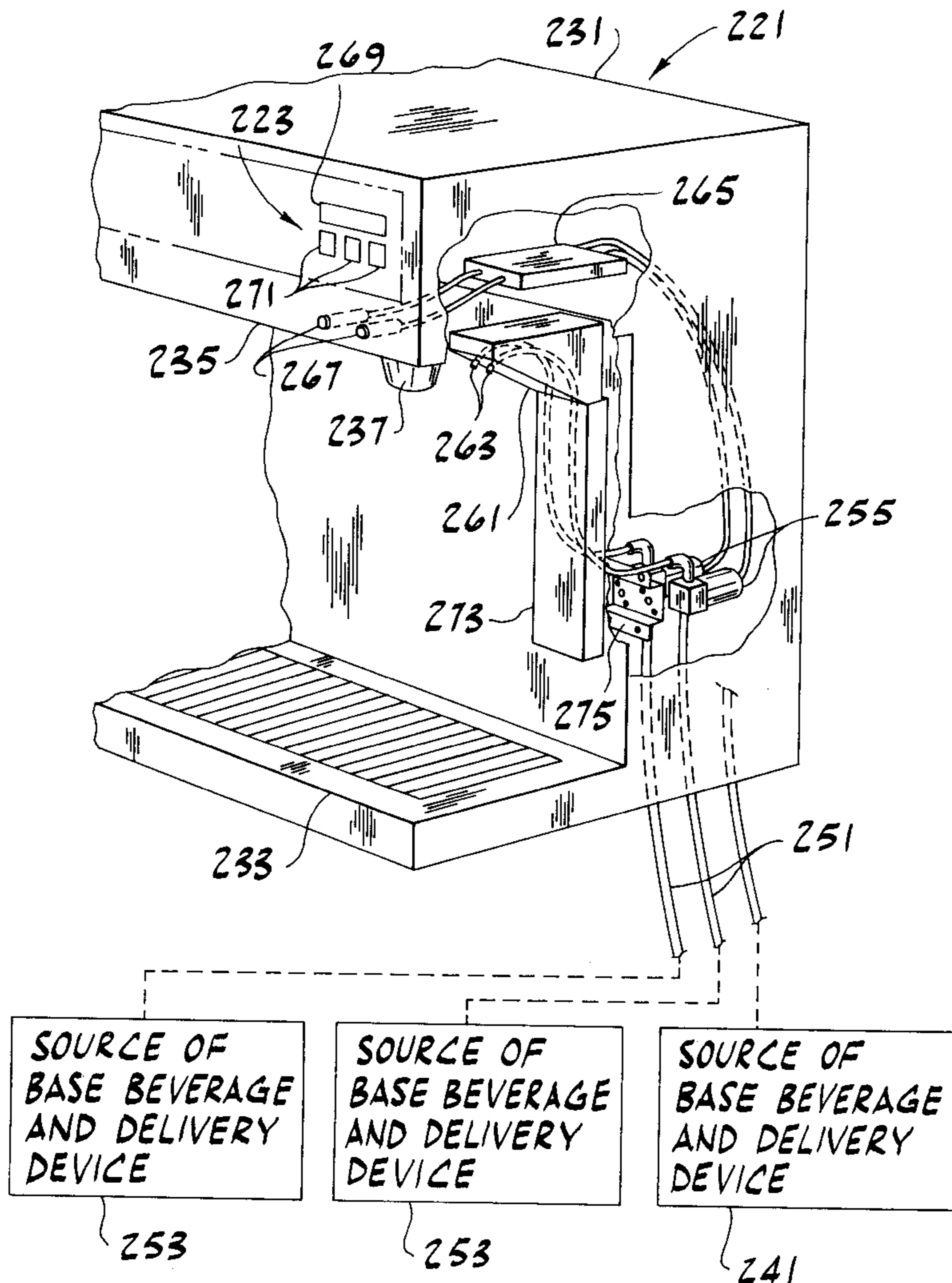
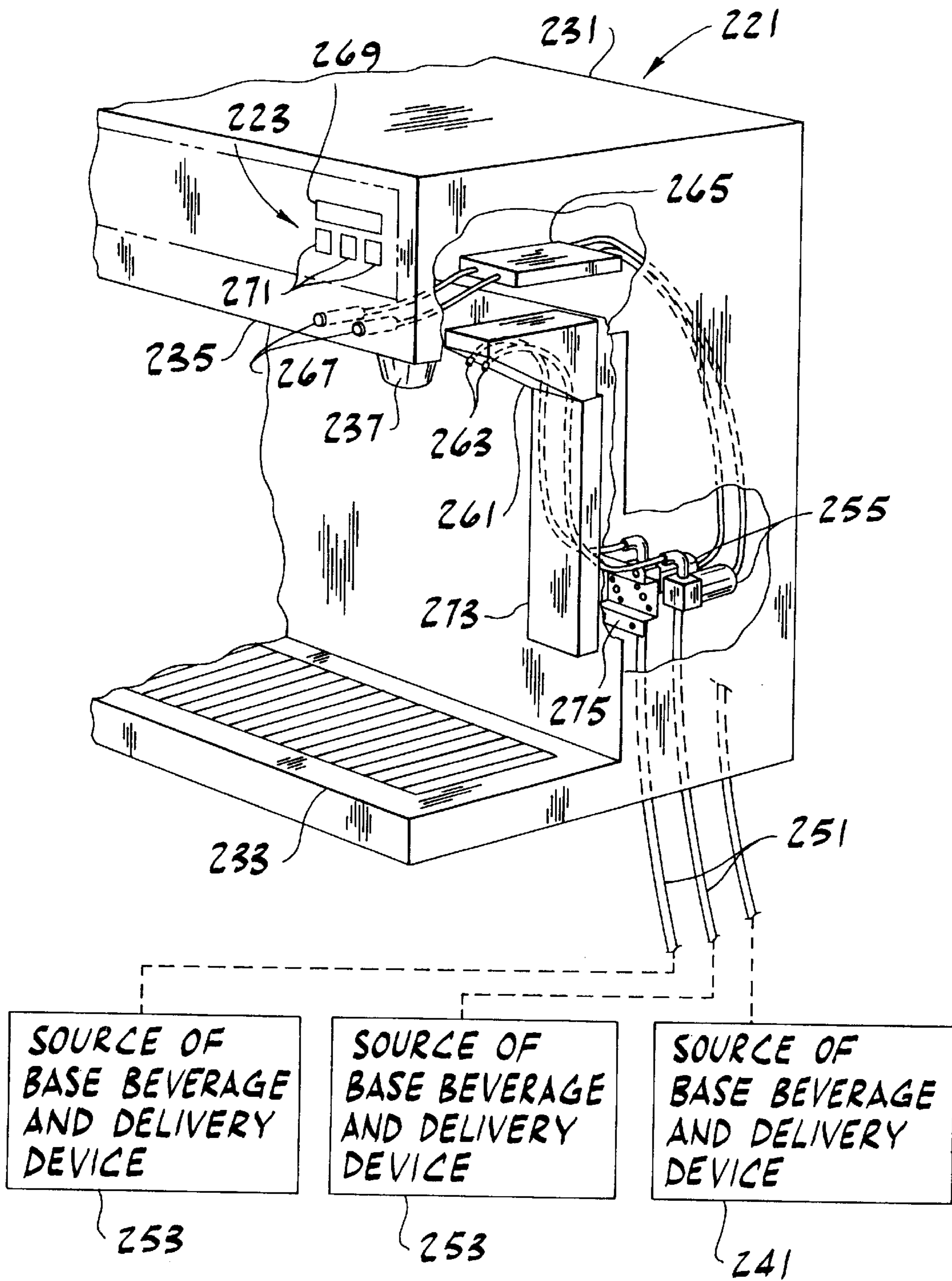


FIG. 2



BEVERAGE DISPENSING APPARATUS

BACKGROUND OF THE INVENTION

This invention relates generally to beverage dispensing apparatus, and more particularly to beverage dispensing apparatus for dispensing conventional beverages with added flavoring.

The apparatus of this invention is especially (albeit not exclusively) suited for dispensing flavored beverages (e.g. soft drinks). Soft drink beverages are typically dispensed from a conventional beverage dispenser in which a base beverage in the form of a concentrated syrup, such as a cola syrup, is dispensed along with a diluting agent, such as carbonated water, into a cup. The dispensing system includes a housing unit, a dispensing nozzle, fluid lines connecting the nozzle to the source of base beverage syrup and a source of diluting agent, a valve for controlling the dispensing of the base beverage and a switch, such as a lever or a keyboard, for controlling actuation of the valve.

Flavoring these standard base beverages with additional flavoring such as cherry or vanilla flavoring has become particularly popular. Presently, flavoring is added to the standard base beverage and packaged as a pre-mix flavored syrup before being hooked up to the fluid lines of the beverage dispenser for dispensing in a conventional manner. For example, beverages sold under the tradenames Cherry Coke and Vanilla Coke are produced by admixing cherry or vanilla flavoring with the base cola syrup to create a flavored cola syrup that can be dispensed from a standard beverage dispenser.

However, adding flavoring to the base beverage prior to dispensing can lead to non-uniform dispersion or layered stratification of the flavoring throughout the base beverage, resulting in a noticeable taste variance as the beverage is consumed. In addition, pre-mixing the flavoring requires additional processing equipment, thereby increasing the cost of the flavored beverage and the time required to create the flavored beverage.

It is also known to manually add flavoring to a base beverage after it has been dispensed into a cup. This method of beverage flavoring also results in increased time to create the beverage and layered stratification of the flavoring throughout the beverage. In addition, since various sizes of cups require correspondingly varying amounts of added flavoring, mixing of the flavoring after the base beverage is dispensed may not assure that the proper ratio of flavoring to base beverage is maintained from one cup size to another.

SUMMARY OF THE INVENTION

Among the several objects of this invention may be noted the provision of an improved beverage dispensing apparatus for dispensing flavoring into a cup for admixture with a base beverage; the provision of such apparatus which promotes uniform mixing of the flavoring with the base beverage; the provision of such apparatus which maintains a constant volume ratio of flavoring to base beverage regardless of the cup size being filled with beverage; and the provision of such an apparatus that permits the source of flavoring to be located remote from the apparatus.

In general, a beverage dispensing apparatus of the present invention comprises a system for dispensing a base beverage including a control for controlling dispensing of a quantity of the base beverage, and a system for dispensing at least one flavoring for admixture with the dispensed base beverage. The flavoring dispensing system has a valve for controlling

dispensing of the flavoring and a control operable in response to actuation of the beverage dispensing system control to dispense base beverage for opening the valve to dispense flavoring simultaneously and throughout dispensing of the base beverage with a constant volume ratio of base beverage and flavoring.

Other objects and features will be in part apparent and in part pointed out hereinafter.

DETAILED DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic of a beverage dispensing apparatus of the present invention;

FIG. 2 is a schematic of a second embodiment of a beverage dispensing apparatus of the present invention; and

FIG. 3 is a schematic wiring diagram of the beverage dispensing apparatus of FIGS. 1 and 2.

Corresponding parts are designated by corresponding numerals throughout the several views of the drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Now referring to the drawings, and more particularly to FIG. 1, beverage dispensing apparatus of the present invention is indicated in its entirety as **21**. This dispensing apparatus **21** is particularly suited for dispensing flavored beverages in which flavoring is dispensed into a cup simultaneously with a standard base beverage for admixture with the base beverage. The base beverage may be a soft drink, such as those known under the tradenames COCA COLA, PEPSI, SEVEN-UP, or other type of commonly dispensed drink, without added flavoring. The dispensing apparatus **21** as shown comprises a base beverage dispensing system, indicated generally at **23**, for dispensing the base beverage into a cup **25** or other type of container and a flavoring dispensing system, indicated generally at **27**, for dispensing one or more flavorings into the cup for admixture with the dispensed base beverage.

The base beverage dispensing system **23** is operable between a dispensing mode in which base beverage is dispensed into the cup **25** and a non-dispensing mode. The system **23** comprises a main housing **31** and a drip tray **33** integrally formed with and extending forward from a lower portion of the main housing. A valve housing **35** projects forward from the main housing **31** and is spaced above the drip tray **33** to permit the cup **25** to be placed on the drip tray generally beneath the valve housing during dispensing of the base beverage. The valve housing **35** as shown is integrally formed with the main housing **31**, but may also be constructed separate from the main housing and attached thereto by suitable connectors (not shown) and remain within the scope of this invention. A nozzle **37** is mounted on the underside of the valve housing **35** to provide an outlet through which the base beverage is dispensed into the cup **25**. Tubing **43** extends within the valve housing **35** and main housing **31** generally from the nozzle **37** back to a source of base beverage syrup **41** remotely located from the main housing to define a beverage line through which the base beverage syrup flows. As illustrated diagrammatically in FIG. 1, the source of base beverage syrup **41** includes a delivery device, such as a pump (not shown), for effecting delivery of the base beverage through the beverage line **43**. Additional tubing (not shown) delivers carbonated water or other diluting agent to the nozzle **37** for mixing with the base beverage in the nozzle and dispensing into the cup **25**.

A solenoid valve **45** is disposed in the valve housing **35** and communicates with the beverage line **43** to function as

a control for controlling the dispensing of base beverage. In the dispensing mode of the base beverage dispensing system **23**, the valve **45** is open to permit dispensing of base beverage, and is closed in the non-dispensing mode to block flow through the beverage line **43** to the nozzle **37**. A second solenoid valve **47** in the valve housing **35** controls the dispensing of the carbonated water. A switch for the base beverage dispensing system is defined by a lever **49** projecting down from the valve housing **35** rearward of the nozzle **37**. The lever **49** is electrically connected by suitable wiring to the solenoid valve **45** and is capable of actuation, such as by pushing the cup **25** rearward against the lever, to a dispensing position in which a beverage control signal is generated and transmitted to the solenoid valve to cause the valve to open for dispensing base beverage. A suitable biasing spring (not shown) biases the lever **49** to a non-dispensing, unactuated position when the cup **25** is no longer pushing against the lever. The valve **47** controlling the dispensing of the carbonated water is also opened upon actuation of the lever **49**. The lever **49** preferably extends down from the valve housing **35** a sufficient length to accommodate various cup sizes (e.g. cup heights corresponding to small, medium and large sized drink portions).

Still referring to FIG. 1, the flavoring dispensing system **27** comprises a pair of tubes **51** that define flavoring lines for delivering flavoring to the cup **25** from a respective source of flavoring **53** located remote from the main housing **31**. The number of flavoring lines **51** may vary depending on the number of flavorings that may be added to a particular base beverage. For example, the flavoring lines **51** of the illustrated embodiment permit up to two flavorings to be dispensed along with the base beverage. However, for the purposes of further describing the flavoring dispensing system **27** of the present invention, reference will be made only to components sufficient to dispense a single flavoring, it being understood that other flavorings may be included in the flavoring dispensing system and dispensed in a similar manner.

The source of flavoring **53** includes a delivery device, such as a pump (not shown) or other suitable device, for effecting the delivery of flavoring from the source of flavoring through the flavoring line. It is also contemplated that the delivery device may be located in the main housing **31** and remain within the scope of the invention. A solenoid valve **55** is disposed in the main housing **31** in fluid communication with the flavoring line **51** to control dispensing of the flavoring. The valve **55** includes a conventional flow control device **57** for controlling the rate of flow through the valve when the valve is open. A portion **59** of the flavoring line **51** upstream of the valve **55** extends forward and outward through the main housing **31** and passes through a support block **61** mounted on the underside of the valve housing **35** rearward of the nozzle **37**. The support block **61** supports the flavoring line **51** against sagging and protects the line against impact damage.

The flavoring line **51** passes generally longitudinally through the support block **61** and has an outlet **63** in close proximity of the nozzle **37** of the base beverage dispensing system **23**. The outlet **63** of the flavoring line **51** is oriented slightly downward for directing flavoring dispensed from the flavoring line down into the cup **25** below the nozzle **37**. As illustrated in FIG. 1, the flavoring line outlet **63** is angled with respect to the nozzle **37** such that the dispensed flavoring intersects the flow of base beverage dispensed from the nozzle of the base beverage dispensing system **23** to facilitate admixture of the flavoring and base beverage. It is to be understood that the support block **61** may be

mounted on the main housing **31**, disposed in the valve housing **35** or main housing, or may be omitted without departing from the scope of this invention, as long as the outlet **63** of the flavoring line **51** is oriented for dispensing the flavoring into the cup **25**.

A control **65** for the flavoring dispensing system **27** is disposed in the main housing **31** and is electrically connected to the flavoring solenoid valve **55** for controlling operation of the valve. The control **65** is also electrically connected by suitable wiring to the beverage dispensing switch **49**. Thus, the beverage control signal is transmitted to and received by both the base beverage solenoid **45** and the control **65** upon actuation of the lever **49** to dispense base beverage. A switch **67** (e.g. button) projects outward from the front of the main housing **31** and is capable of transmitting a flavoring control signal upon actuation of the switch, such as by pushing inward against the switch. The flavoring dispensing system switch **67** is electrically connected by suitable wiring to the flavoring dispensing system control **65** so that the flavoring control signal is transmitted to and received by the control. The switch **67** may also include a lighting device (not shown) for illuminating the switch when the switch is activated. In this embodiment, the flavoring dispensing system **27** only dispenses flavoring into the cup **25** in response to the control **65** receiving both the beverage control signal and the flavoring control signal.

With reference to FIG. 3, the flavoring dispensing system control **65** receives the flavoring control signal via line **300** when the operator depresses the flavoring dispensing switch **67** and receives the beverage control signal via line **302** when the operator actuates the lever **49** to dispense the base beverage. As described above, the beverage control signal is also transmitted to the base beverage solenoid valve **45** for causing the base beverage to be dispensed. If a flavoring is not desired, then the flavoring dispensing system control **65** remains inactive and base beverage is dispensed in a conventional manner. However, the control **65** is responsive to both the flavoring control signal and the beverage control signal for dispensing the flavoring for admixing with the base beverage.

As an example, the flavoring dispensing switch **67** is embodied by a normally open single pole, single throw switch which only provides a momentary contact when depressed by the operator. The control **65** includes a flip flop **304** (e.g., a J-K flip flop) which is clocked, in general, by the positive-going transitions of the flavoring control signal input via line **300**. As shown in FIG. 3, the flip flop **304** has an output Q connected to a gate **306** via line **308**. In response to the momentary actuation of the flavoring dispensing switch **67**, a dispensing mode is initiated by the output Q being set high. In a preferred embodiment of the invention, the gate **306** performs an AND function on the flip flop output Q which is input via line **308** and the beverage control signal which is input via line **300**. The output of gate **306** at line **310** constitutes a valve control signal for actuating the flavoring solenoid valve **55** to dispense flavoring concurrently with the base beverage. In turn, a line **312** provides feedback of the output of gate **306** at line **310** to an AND gate **314** which combines the valve control signal with the flavoring control signal for clocking flip flop **304**. In this manner, the flavoring dispensing system control **65** resets flip flop **304**, initiating a non-dispensing reset mode, when the beverage control signal is no longer present.

In other words, flip flop **304** is configured for operation in a dispensing mode upon receiving the flavoring control signal transmitted upon actuation of the flavoring dispensing system switch **67**, and a non-dispensing reset mode in which

the flavoring control signal is deactivated. In the dispensing mode, flip flop **304** is capable of generating and transmitting the valve control signal to the flavoring solenoid valve **55** upon receiving the beverage control signal to open the valve for dispensing flavoring simultaneously with the base beverage throughout the duration of the dispensing of base beverage.

FIG. **3** also illustrates circuitry similar to the above-described circuitry for providing a valve control signal to a second flavoring dispensing solenoid valve.

In operation, with the base beverage dispensing system **23** assembled in a conventional manner, the flavoring line **51** is connected to the source of flavoring **53** and the flow control **57** of the valve is adjusted to provide a predetermined rate of flow of flavoring through the valve in accordance with a desired concentration ratio of flavoring and base beverage. To dispense only base beverage (e.g. without added flavoring), the cup **25** is placed upright on the drip tray **33** beneath the nozzle **37** of the base beverage dispensing system **23** and pushed against the lever **49**. Actuation of the lever **49** to its dispensing position generates the beverage control signal which is transmitted to and received by the solenoid valves **45**, **47** in the beverage line **43** and the carbonated water line. Upon receiving the control signal, the valves **45**, **47** are opened to permit base beverage and carbonated water to flow through the beverage line and out the nozzle **37** into the cup **25**. When the cup **25** is filled to a desired level, it is moved away from the lever **49** and the lever is biased back to its original, non-dispensing position, deactivating the beverage control signal so that the valves **45**, **47** close.

To dispense flavoring along with the base beverage, the flavor dispensing system switch **67** is actuated by pushing inward against the switch. The switch **67** is illuminated by the lighting device to indicate that the switch has been activated. Actuation of the switch **67** generates and transmits a flavoring control signal that is received by the flip flop **304** of the flavoring dispensing system control **65** to place the flip flop in its dispensing mode. The cup **25** is then placed on the drip tray **33** and pushed against the lever **49** as described above to transmit the beverage control signal to the valves **45**, **47** for dispensing the base beverage. The beverage control signal is also transmitted to and received by the flip flop **304**. Since the flip flop **304** is in its dispensing mode (having received the flavoring control signal), it generates and transmits the valve control signal to the valve **55** in the flavoring line **51**.

Upon receiving the valve control signal, the flavoring solenoid valve **55** opens for dispensing flavoring from the flavoring line outlet **63** simultaneously with the dispensing of the base beverage. The flavoring dispensed from the flavoring line outlet **63** intersects the flow of the base beverage from the nozzle **37** as it flows into the cup **25** to facilitate admixture of the base beverage and flavoring before reaching the bottom or otherwise the drink level of the cup. The flavoring is dispensed throughout the duration of dispensing of the base beverage. Once the cup **25** is filled to a desired level, it is pulled away from the lever **49** to deactivate the beverage control signal. The solenoid valves **45**, **47** in the valve housing **35** are closed and, because the flip flop **304** no longer receives the beverage control signal, the flip flop is placed in its non-dispensing reset mode wherein the valve control signal is deactivated and the flavoring solenoid valve **55** is closed. The flavoring control signal is also deactivated and the flavor selection switch **67** is unilluminated.

FIG. **2** illustrates a second embodiment of the beverage dispensing apparatus **221** of the present invention in which

the base beverage dispensing system switch is defined by a keyboard **269**. The base beverage dispensing system **223** includes the main housing **231**, drip tray **233**, and valve housing **235** integrally formed with the main housing. The keyboard **269** is disposed on the front of the valve housing **235** and is electrically connected by suitable wiring to the base beverage solenoid valve (not shown in FIG. **2** but is substantially similar to the valve **45** of FIG. **1**). Keys **271** of the keyboard **269** are capable of actuation, such as by pushing inward against the key, to a dispensing position in which a beverage control signal is generated and transmitted to the solenoid valve **45** to cause the valve to open for dispensing base beverage. The keyboard **269** may be connected to a timing device (not shown) so that the beverage control signal is deactivated after a predetermined period of time corresponding to the volume of base beverage to be dispensed (e.g. small, medium, large). The keyboard **269** may also be manually operable whereby the key **271** must be manually held in its dispensing position to generate the beverage dispensing control signal so that the control signal is transmitted only while the operator is depressing the key.

The flavoring line **251** of the flavoring dispensing system **227** of this second embodiment extends outward through the main housing **231** intermediate the drip tray **233** and valve housing **235** and extends upward, passing into and through a support block **261** mounted on the underside of the valve housing rearward of the nozzle **237**. A cover **273** is secured to the main housing **231** over the flavoring line **251** and extends vertically between the support block **261** and the location at which the flavoring line extends outward of the main housing to protect the flavoring line against inadvertent contact by the operator. As shown in FIG. **2**, the flavoring line **251** generally arches upward and forward through the support block **261** terminating in close proximity of the nozzle **237** of the base beverage dispensing system **223**.

The outlet **263** of the flavoring line **251** is oriented slightly downward for directing flavoring dispensed from the flavoring line outlet down into the cup **225** below the nozzle **237**. The orientation of the flavoring line outlet **263** is preferably such that the dispensed flavoring intersects the flow of base beverage dispensed from the nozzle **237** of the base beverage dispensing system **223** to facilitate admixture of the flavoring and base beverage. It is to be understood that the support block **261** may be mounted on the main housing **231**, disposed in the valve housing **235** or main housing, or may be omitted without departing from the scope of this invention, as long as the flavoring line **251** is oriented for dispensing the flavoring into the cup **225**. A mounting bracket **275** disposed in the main housing **231** supports the solenoid valve **255** in fluid communication with the flavoring line **251**. The flavoring dispensing system control **265** and flavoring dispensing system switch **267** are constructed and arranged in a manner substantially similar to that of the first embodiment.

Operation of the dispensing apparatus **221** of the second embodiment is also similar to that described above with respect to the first embodiment and, in particular, with respect to FIG. **3**. To dispense flavoring along with the base beverage, the flavoring dispensing system switch **267** is actuated by pushing inward against the switch. The switch **267** is illuminated by the lighting device to indicate that the flavor selection switch has been activated. Actuation of the switch **267** generates and transmits a flavoring control signal that is received by the flip flop **304** of the flavoring dispensing system control **265** to place the flip flop in its dispensing mode. The cup **225** is then placed on the drip tray **233** and a key **271** of the keyboard **269** (e.g. small, medium, large)

is depressed to generate and transmit the beverage control signal to the base beverage solenoid valve **45** for dispensing the base beverage. Depressing the key **271** also activates the timing device so that the beverage control signal will be deactivated after a predetermined time period corresponding to the selected drink size. The beverage control signal is also transmitted to and received by the flip flop **304**. Since the flip flop **304** is in its dispensing mode (having received the flavoring control signal), the flip flop generates and transmits the valve control signal to the flavoring solenoid valve **255**.

Upon receiving the valve control signal, the flavoring solenoid valve **255** opens for dispensing flavoring from the flavoring line outlet **263** simultaneously with the dispensing of the base beverage. The flavoring dispensed from the flavoring line outlet **263** intersects the flow of the base beverage from the nozzle **237** as it flows into the cup **225** to facilitate admixture of the base beverage and flavoring before reaching the bottom or otherwise the drink level of the cup. The flavoring is dispensed throughout the duration of dispensing of the base beverage. When the time period for dispensing the base beverage expires, the timing device deactivates the beverage control signal. The solenoid valve **45** in the valve housing **235** is closed and, because the flip flop **304** no longer receives the beverage control signal, the flip flop is placed in its non-dispensing reset mode in which the valve control signal is deactivated and the flavoring solenoid valve is closed. The flavoring control signal is also deactivated and the flavor selection switch **267** is reset and unilluminated.

It will be observed from the foregoing that the beverage dispensing apparatus shown and described herein satisfies the several various objectives of the invention and provides other advantageous results. Providing a flavoring dispensing system control **65** for controlling operation of the flavoring solenoid valve **55** in response to dispensing of the base beverage allows the flavoring to be dispensed into the cup **25** simultaneously and throughout dispensing of the base beverage. This results in a more uniform, thorough mixing of the flavor with the base beverage to provide a fresher, more consistent taste during consumption of the beverage. In addition, because the flavoring dispensing system control **65** is responsive only to the beverage control signal, a constant volume ratio of flavoring to base beverage is automatically maintained by the apparatus regardless of the size of the cup being filled.

In addition, since the flavoring is dispensed simultaneously with the base beverage, pre-mixing of the beverage is eliminated, thereby reducing the cost of additional processing equipment and the time required to create the flavored beverage. Also, the flavoring sources **53** can be located remote from the apparatus so that no additional counter space is needed to incorporate the flavoring dispensing system **27** with the base beverage dispensing system **21**.

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A beverage dispensing apparatus comprising:

a system for dispensing a base beverage, said base beverage dispensing system including a control for controlling dispensing of a quantity of the base beverage; and

a system for dispensing at least one flavoring for admixture with the dispensed based beverage, said flavoring

dispensing system having a valve for controlling dispensing of the flavoring and a control responsive to actuation of the beverage dispensing system control to dispense base beverage for opening the valve to dispense flavoring simultaneously and throughout dispensing of the base beverage with a constant volume ratio of base beverage and flavoring.

2. A beverage dispensing apparatus as set forth in claim **1** wherein the beverage dispensing system further includes a switch electrically connected with the beverage dispensing system control to provide a beverage control signal to the beverage dispensing system control to actuate the system between a dispensing mode and a non-dispensing mode, the flavoring dispensing system control being electrically connected to the beverage dispensing system switch for receiving the beverage control signal.

3. A beverage dispensing apparatus comprising:

a beverage dispensing system for dispensing a base beverage, said beverage dispensing system including a control for controlling dispensing of a quantity of the base beverage;

a flavoring dispensing system for dispensing at least one flavoring for admixture with the dispensed based beverage, said flavoring dispensing system having a valve for controlling dispensing of the flavoring and a control responsive to actuation of the beverage dispensing system control to dispense base beverage for opening the valve to dispense flavoring simultaneously and throughout dispensing of the base beverage with a constant volume ratio of base beverage and flavoring;

the beverage dispensing system further including a switch electrically connected with the beverage dispensing system control to provide a beverage control signal to the beverage dispensing system control to actuate the system between a dispensing mode and a non-dispensing mode, the flavoring dispensing system control being electrically connected to the beverage dispensing system switch for receiving the beverage control signal; and

a flavoring dispensing system switch electrically connected to the flavoring dispensing system control for providing a flavoring control signal to the flavoring dispensing system control when the switch is activated, the flavoring dispensing system control receiving and responding to both the beverage control signal and the flavoring control signal for opening the valve of the flavoring dispensing system to dispense flavoring into the cup simultaneously and throughout dispensing of the base beverage.

4. A beverage dispensing apparatus as set forth in claim **3** wherein the flavoring dispensing system control has a flip flop for receiving and responding to the beverage control signal and the flavoring control signal, the flip flop being in a dispensing mode upon receiving the flavoring control signal whereby the flavoring dispensing system control is capable of opening the valve of the flavoring dispensing system in response to the flip flop receiving the beverage control signal upon and throughout dispensing of the base beverage, the flip flop being in a non-dispensing reset mode when it no longer receives the beverage control signal whereby the flavoring dispensing system control closes the valve to prevent dispensing of the flavoring and deactivates the flavoring control signal.

5. A beverage dispensing apparatus as set forth in claim **3** wherein the valve of the flavoring dispensing system is electrically connected to the flavoring dispensing system control, the flavoring dispensing system control transmitting

9

a valve control signal to the valve in response to receiving the beverage control signal and the flavoring control signal for opening the valve.

6. A beverage dispensing apparatus as set forth in claim 5 wherein the flavoring dispensing system is connected to a source of flavoring remotely located from the apparatus.

7. A beverage dispensing apparatus as set forth in claim 3 wherein the beverage dispensing system has a beverage line through which base beverage flows, the beverage line having an outlet positioned for dispensing the base beverage into a cup, the flavoring dispensing system having a flavoring line through which flavoring flows, the flavoring line having an outlet positioned for dispensing the flavoring into the cup, the beverage line outlet and the flavoring line outlet being arranged with respect to each other so that flavoring dispensed through the flavoring line outlet mixes with base beverage dispensed from the beverage line outlet generally within the cup.

8. A beverage dispensing apparatus as set forth in claim 7 wherein the flavoring line outlet is arranged with respect to the beverage line outlet so that the flow of flavoring from the flavoring line outlet intersects the flow of base beverage from the beverage line outlet for admixture as the flavoring and base beverage are dispensed into the cup.

9. A beverage dispensing apparatus comprising:

a beverage dispensing system for dispensing a base beverage, said beverage dispensing system including a control for controlling dispensing of a quantity of the base beverage;

a flavoring dispensing system for dispensing at least one flavoring for admixture with the dispensed base beverage, said flavoring dispensing system having a valve for controlling dispensing of the flavoring and a control operable in response to actuation of the beverage dispensing system control to dispense base beverage for opening the valve to dispense flavoring simultaneously and throughout dispensing of the base beverage with a constant volume ratio of base beverage and flavoring; and

10

a flavoring dispensing system switch electrically connected to the flavoring dispensing system control for providing a flavoring control signal to the flavoring dispensing system control when the switch is activated, the flavoring dispensing system control responding to both actuation of the beverage dispensing system control and the flavoring control signal for opening the valve of the flavoring dispensing system to dispense flavoring into the cup simultaneously and throughout dispensing of the base beverage.

10. A beverage dispensing apparatus as set forth in claim 9 wherein the valve of the flavoring dispensing system is electrically connected to the flavoring dispensing system control, the flavoring dispensing system control transmitting a valve control signal to the valve in response to receiving the beverage control signal and the flavoring control signal for opening the valve.

11. A beverage dispensing apparatus as set forth in claim 10 wherein the flavoring dispensing system is connected to a source of flavoring remotely located from the apparatus.

12. A beverage dispensing apparatus as set forth in claim 9 wherein the beverage dispensing system has a beverage line through which base beverage flows, the beverage line having an outlet positioned for dispensing the base beverage into a cup, the flavoring dispensing system having a flavoring line through which flavoring flows, the flavoring line having an outlet positioned for dispensing the flavoring into the cup, the beverage line outlet and the flavoring line outlet being arranged with respect to each other so that flavoring dispensed from the flavoring line outlet mixes with base beverage dispensed from the beverage line outlet generally within the cup.

13. A beverage dispensing apparatus as set forth in claim 12 wherein the flavoring line outlet is arranged with respect to the beverage line outlet so that the flow of flavoring from the flavoring line outlet intersects the flow of base beverage from the beverage line outlet for admixture as the flavoring and base beverage are dispensed into the cup.

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO : 5,960,997
DATED : October 5, 1999
INVENTOR(S): David P. Forsythe

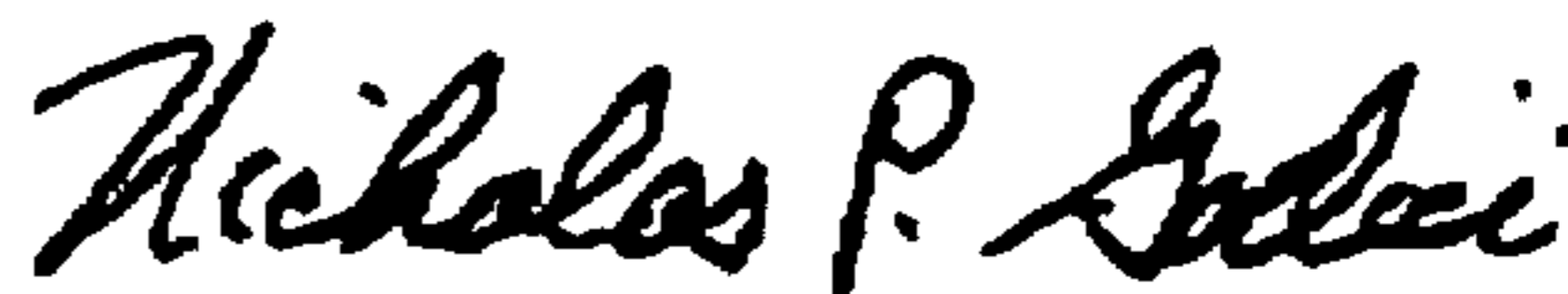
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Drawing Sheet 1 of 3, Fig. 1, reference numeral 53 (both occurrences), "SOURCE OF BASE BEVERAGE AND DELIVERY DEVICE" should read--SOURCE OF FLAVORING AND DELIVERY DEVICE--.

Drawing Sheet 2 of 3, Fig. 2, reference numeral 253 (both occurrences), "SOURCE OF BASE BEVERAGE AND DELIVERY DEVICE" should read--SOURCE OF FLAVORING AND DELIVERY DEVICE--.

Signed and Sealed this
Thirteenth Day of February, 2001

Attest:



NICHOLAS P. GODICI

Attesting Officer

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